

LISTING OF CLAIMS

Claim 1 (Currently Amended)

A high-pressure processing apparatus for subjecting a surface of a process subject to a predetermined surface treatment by allowing a process fluid comprising a high-pressure fluid or a mixture of the high-pressure fluid and at least one chemical agent to contact the surface of said process subject, said apparatus comprising:

at least one pressure vessel including a processing chamber defined therein for performing said surface treatment;

at least one mixing section supplying a process fluid under pressure to said at least one pressure vessel;

a high-pressure fluid supply unit pumping a first fluid under pressure to said at least one mixing section; and

at least one chemical-agent supply unit preparing a chemical formulation by blending at least one of plural chemical agents and pumping the chemical formulation under pressure into said at least one mixing section,

wherein the first fluid pumped from said high-pressure fluid supply unit and the chemical formulation pumped from the at least one chemical-agent supply unit are mixed within the at least one mixing section prior to being supplied to said processing chamber as the process fluid,

wherein said plural chemical agents are stored in dedicated tanks, respectively,

wherein said chemical-agent supply unit includes: blending means for blending the chemical agents; a plurality of flow-rate control means each provided in correspondence to a respective one of said dedicated tanks; and pumping means for pumping said chemical formulation blended by said blending means, and

wherein said chemical-agent supply unit adjusts blending proportions of the individual chemical agents in said chemical formulation by way of said plural flow-rate control means individually controlling the respective flow rates of said plural chemical agents supplied to said blending means.

Claim 2 (Canceled)

Claim 3 (Currently Amended)

A high-pressure processing apparatus as claimed in Claim 1 2, wherein said plural flow-rate control means each perform a feedback control for controlling the flow rate of the chemical agent supplied to said blending means.

Claim 4 (Canceled)

Claim 5 (Currently Amended)

A high-pressure processing apparatus as claimed in Claim 1 2, wherein said blending means is a mixing valve assembly.

Claim 6 (Currently Amended)

A high-pressure processing apparatus as claimed in Claim 1 2, wherein at least one of said plural chemical agents is a replenishing chemical agent, wherein said tank stores said replenishing chemical agent, and wherein said apparatus further comprises a replenishment section replenishing said tank with said replenishing chemical agent.

Claim 7 (Previously Presented)

A high-pressure processing apparatus as claimed in claim 1, said apparatus comprising:
a plurality of said pressure vessels each including a processing chamber defined therein for performing said surface treatment;

a plurality of said mixing sections, each mixing section supplying a process fluid under pressure to one of said pressure vessels;

said high-pressure fluid supply unit pumping said first fluid under pressure into said plurality of mixing sections;

a plurality of common tanks individually storing therein a respective one of plural chemical agents; and

a plurality of said chemical-agent supply units, each chemical-agent supply unit corresponding to one of the plural mixing sections and preparing a chemical formulation for the corresponding mixing section by blending at least one of said plural chemical agents supplied

from said plural common tanks and pumping the chemical formulation under pressure into the corresponding mixing section, wherein the first fluid pumped from said high-pressure supply unit and the chemical formulation pumped from each chemical-agent supply unit are mixed within the corresponding mixing section prior to being supplied to one of the processing chambers as the process fluid.

Claim 8 (Previously Presented)

A high-pressure processing apparatus as claimed in Claim 7, wherein each of said plural chemical-agent supply units further comprises blending means for blending the chemical agents; a plurality of flow-rate control means each provided in correspondence to a respective one of said plural common tanks; and pumping means for pumping said chemical formulation blended by said blending means, and wherein each of said chemical-agent supply units adjusts blending proportions of the individual chemical agents in said chemical formulation by way of said plural flow-rate control means individually controlling the respective flow rates of said plural chemical agents supplied to said blending means.

Claim 9 (Original)

A high-pressure processing apparatus as claimed in Claim 8, wherein said plural flow-rate control means each perform a feedback control for controlling the flow rate of the chemical agent supplied to said blending means.

Claim 10 (Canceled)

Claim 11 (Original)

A high-pressure processing apparatus as claimed in Claim 8, wherein said blending means is a mixing valve assembly.

Claim 12 (Previously Presented)

A high-pressure processing apparatus as claimed in Claim 8, wherein at least one of said plural chemical agents is a replenishing chemical agent, wherein said tank stores said

replenishing chemical agent, and wherein said apparatus further comprises a replenishment section replenishing said tank with said replenishing chemical agent.

Claims 13-14 (Canceled)

Claim 15 (Previously Presented)

A high-pressure processing apparatus as claimed in Claim 1 further comprising a recovery unit connected to the pressure vessel and recovering said high-pressure fluid after the surface of the process subject has been subjected to the predetermined surface treatment.

Claim 16 (Previously Presented)

A high-pressure processing apparatus as claimed in Claim 7 further comprising a recovery unit connected to the plurality of pressure vessels and recovering said high-pressure fluid after the surface of the process subject has been subjected to the predetermined surface treatment.

Claim 17 (Previously Presented)

A high-pressure processing apparatus as claimed in Claim 1, wherein said chemical agent supply section includes a pump and a blending section for blending at least one of plural chemical agents to prepare the chemical formulation in an upstream side with respect to said pump,

said blending section blends under pressure which is lower than pressure in a downstream side with respect to said pump, and

said pump pumps the chemical formulation.

Claim 18 (Previously Presented)

A high-pressure processing apparatus as claimed in Claim 17, wherein said blending section blends under normal pressure.

Claim 19 (Previously Presented)

A high-pressure processing apparatus as claimed in Claim 7, wherein each chemical-agent supply unit includes a pump and a blending section for blending at least one of plural chemical agents to prepare the chemical formulation in an upstream side with respect to said pump,

said blending section blends under pressure which is lower than pressure in a downstream side with respect to said pump, and

said pump pumps the chemical formulation.

Claim 20 (Currently Amended)

A high-pressure processing apparatus as claimed in Claim 19,

A high-pressure processing apparatus for subjecting a surface of a process subject to a predetermined surface treatment by allowing a process fluid comprising a high-pressure fluid or a mixture of the high-pressure fluid and at least one chemical agent to contact the surface of said process subject, said apparatus comprising:

at least one pressure vessel including a processing chamber defined therein for performing said surface treatment;

at least one mixing section supplying a process fluid under pressure to said at least one pressure vessel;

a high-pressure fluid supply unit pumping a first fluid under pressure to said at least one mixing section; and

at least one chemical-agent supply unit preparing a chemical formulation by blending at least one of plural chemical agents and pumping the chemical formulation under pressure into said at least one mixing section,

wherein the first fluid pumped from said high-pressure fluid supply unit and the chemical formulation pumped from the at least one chemical-agent supply unit are mixed within the at least one mixing section prior to being supplied to said processing chamber as the process fluid;

said apparatus comprising:

a plurality of said pressure vessels each including a processing chamber defined therein for performing said surface treatment;

a plurality of said mixing sections, each mixing section supplying a process fluid under pressure to one of said pressure vessels;

said high-pressure fluid supply unit pumping said first fluid under pressure into said plurality of mixing sections;

a plurality of common tanks individually storing therein a respective one of plural chemical agents; and

a plurality of said chemical-agent supply units, each chemical-agent supply unit corresponding to one of the plural mixing sections and preparing a chemical formulation for the corresponding mixing section by blending at least one of said plural chemical agents supplied from said plural common tanks and pumping the chemical formulation under pressure into the corresponding mixing section, wherein the first fluid pumped from said high-pressure supply unit and the chemical formulation pumped from each chemical-agent supply unit are mixed within the corresponding mixing section prior to being supplied to one of the processing chambers as the process fluid;

wherein each chemical-agent supply unit includes a pump and a blending section for blending at least one of plural chemical agents to prepare the chemical formulation in an upstream side with respect to said pump.

said blending section blends under pressure which is lower than pressure in a downstream side with respect to said pump, and

said pump pumps the chemical formulation; and

wherein said blending section blends under normal pressure.